

WHAT IS CLAIMED IS:

1. An oil extended rubber comprising:
a solution polymerized elastomer derived from isoprene and optionally at least
5 member of the group consisting of conjugated dienes and vinyl aromatic monomers;
and
from about 5 to about 70 parts by weight, per 100 parts by weight of elastomer
(phr), of a low PCA oil having a glass transition temperature of from about -80°C to
about -40°C and a polycyclic aromatic content of less than 3 percent by weight as
10 determined by the IP346 method.
2. The oil extended rubber of claim 1, wherein said solution polymerized
elastomer is selected from the group consisting of styrene-isoprene-butadiene rubber
(SIBR), isoprene-butadiene rubber (IBR), styrene-isoprene rubber (SIR) and synthetic
15 polyisoprene rubber (IR).
3. The oil extended rubber of claim 1, wherein said solution polymerized
elastomer is metal-coupled.
- 20 4. The oil extended rubber of claim 1, wherein said solution polymerized
elastomer is selected from the group consisting of tin- or silicon-coupled styrene-
isoprene-butadiene rubber (SIBR), tin- or silicon-coupled isoprene-butadiene rubber
(IBR), tin- or silicon-coupled styrene-isoprene rubber (SIR), and tin- or silicon-coupled
polyisoprene rubber (IR).
- 25 5. The oil extended rubber of claim 1, wherein said low PCA oil is selected
from the group consisting of mild extraction solvates (MES), treated distillate aromatic
extracts (TDAE), and heavy naphthenic oils.
- 30 6. The oil extended rubber of claim 1, wherein said low PCA oil is a mild
extraction solvate (MES) having a glass transition temperature in a range of from about
-57°C to about -63°C.

7. The oil extended rubber of claim 1, wherein said low PCA oil is a treated distillate aromatic extract (TDAE) having a glass transition temperature in a range of from about -44°C to about -50°C.

5 8. The oil extended rubber of claim 1, wherein said low PCA oil is a heavy naphthenic oil having a glass transition temperature in a range of from about -42°C to about -48°C.

10 9. The oil extended rubber of claim 1, wherein said solution polymerized elastomer is extended by: adding the low PCA oil to a cement of the elastomer in organic solvent subsequent to termination of polymerization; and removing the solvent.

15 10. The oil extended rubber of claim 1 in the form of a masterbatch comprising at least one additive selected from carbon black and antidegradants.

11. The oil extended rubber of claim 1, wherein said low PCA oil contains not more than 1 mg/kg of benzo(a)pyrene, and not more than a total of 10 mg/kg of polycyclic aromatic compounds selected from the group consisting of benzo(a)pyrene, benzo(e)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, 20 benzo(k)fluoranthene, dibenzo(a,h)anthracene, and chrysene.

12. The oil extended rubber of claim 1 in the form of a vulcanizable rubber composition, wherein said composition further comprises a filler selected from the group consisting of carbon black, silica, polymer gels, and plasticizer/starch 25 composites.

13. The oil extended rubber of claim 12, wherein said composition further comprises from about 10 to about 100 phr of carbon black.

30 14. The oil extended rubber of claim 12, wherein said composition further comprises from about 10 to about 100 phr of precipitated silica.

15. The oil extended rubber of claim 12, wherein said composition further comprises from about 20 to about 100 phr of carbon black and silica.

16. The oil extended rubber of claim 12, wherein said composition further
5 comprises from about 1 to about 20 phr of a starch/plasticizer composite filler.

17. The oil extended rubber of claim 12, wherein said composition further comprises at least one additional elastomer is selected from the group consisting of natural rubber, polybutadiene rubber, and styrene-butadiene rubber.

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18. The oil extended rubber of claim 12, wherein composition is included as a component of a pneumatic tire.

19. The oil extend rubber of claim 18, wherein said component is selected
15 from the group consisting of tread caps, tread bases, or sidewalls.

20. The oil extended rubber of claim 1, wherein said low PCA oil is present in a concentration of from 20 to 40 phr.